



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. 10039517

Applicant : Don Carl Powell et al.
Serial No : 10/039,517
Filed : January 3, 2002
Title : **SYSTEM AND DEVICE INCLUDING BARRIER LAYER**
Docket : MIO 0059 V2
Examiner : D. Le
Art Unit : 2818
Conf. No : 3647

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on November 3, 2003.

Susan M. Yuna
Agent

Reg. No. 38,769

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Sir:

PETITION FROM REQUIREMENT FOR RESTRICTION UNDER 37 CFR 1.144

Applicants hereby petition the Commissioner to review and withdraw the restriction requirement made in the above-identified application on February 19, 2003. Enclosed is a check in the amount of \$130.00 for payment of the fee required by 37 CFR §1.17(h).

A restriction requirement was made in the above-identified application on February 19, 2003 (Paper No. 5). In the restriction requirement, the Examiner identified the following 16 species from which applicants were required to elect:

- a) Species I, e.g. claims 30, 48: Capacitor device with nitride silicon-containing barrier layer.
- b) Species II, e.g. claim 31: Computer system. See Fig. 5.
- c) Species III, e.g. claims 32-39, 40, 41 and 42: Device with a silicon-containing barrier.
- d) Species IV, e.g. claims 43-47: A semiconductor device with transistor structure having a silicon-containing barrier layer.
- e) Species V, e.g. claim 49: A semiconductor device having a silicon-containing barrier layer containing no metal forming from silicon source.

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- f) Species VI, e.g. claim 50: A semiconductor device having a silicon-containing barrier layer containing no metal forming from silazane source.
- g) Species VII, e.g. claim 51: A semiconductor device with transistor structure having a barrier layer containing no metal.
- h) Species VIII, e.g. claim 52: A capacitor device with barrier layer containing no metal using rapid thermal nitridation with a nitridizing reactant.
- i) Species IX, e.g. claims 53-60: Capacitor device with nitride silicon-containing barrier layer from silicon source.
- j) Species X, e.g. claims 61-64: A device having a precursor layer with a metal-free silicon-containing material formed over at least a portion of first semiconductor device.
- k) Species XI, e.g. claim 65: A device having a precursor layer with a metal-free silicon-containing material formed over at least a portion of silicon substrate.
- l) Species XII, e.g. claim 66: A semiconductor device a precursor layer metal-free silicon-containing material forming from silicon source.
- m) Species XIII, e.g. claim 67: A semiconductor device having a precursor layer metal-free silicon-containing material forming from silazane source.
- n) Species XIV, e.g. claims 68-71: A semiconductor device with transistor structure having a metal-free containing precursor layer.
- o) Species XV, e.g. claims 72-73: A capacitor having a precursor layer forming over an electrode from a metal-free silicon-containing material from a silazane source.
- p) Species XVI, e.g. claim 74: A capacitor having a precursor layer forming over an electrode from a metal-free silicon-containing material from a silane source.

Applicants responded to the restriction requirement on March 11, 2003 by electing claims 32-42 with traverse. The restriction requirement was made final in an Office Action mailed June 4, 2003 (Paper No. 8). Applicants subsequently requested reconsideration of the final restriction requirement in an amendment filed July 14, 2003.

While the Examiner has contended that the identified species are mutually exclusive, applicants submit that the Examiner has provided no basis or reasoning for his conclusions. According to the MPEP §816, "[t]he particular reasons relied on by the examiner for holding that

the inventions as claimed are either independent or distinct should be concisely stated. A mere statement of conclusion is inadequate. The reasons upon which the conclusion is based should be given." The only reasoning offered by the Examiner is a comparison of the preambles of several of the claims, for example, a comparison of species 1, claims 30 and 48 (capacitor device) with that of species II claim 31 (computer system) (see Paper No. 8, page 4). However, as applicants previously pointed out to the Examiner, the claims in species I and II recite similar subject matter. Species I, claims 30 and 48 recite, *inter alia*, a "primarily nitride silicon-containing barrier layer" comprising a "silicon-containing material" (claim 30) and "a silicon-containing material" that has been reacted "to form a barrier layer (claim 48)." Species II, claim 31 recites, *inter alia*, "a silicon-containing barrier layer comprising a silicon-containing material." These claims are clearly not mutually exclusive as they share commonly-recited features.

The Examiner further compared the preamble of species III, claims 32-39, 40, 41, 42 (device with a silicon-containing barrier) with the preamble of species IV, claims 43-47 (a semiconductor device with transistor structure having a silicon-containing barrier layer). Again, those claims recite common subject matter. The claims in species III recite, *inter alia*, "a barrier layer formed from a silicon source" (claim 32), and a "silicon-containing material" that "form[s] a barrier layer" (claims 40 and 42) while the claims in species IV recite, *inter alia*, "a silicon-containing material" that "form[s] the barrier layer" (claims 43-47).

As set forth in MPEP §806.03, restriction is improper where the claims are but different definitions of the same disclosed subject matter, varying in breadth or scope of definition. While applicants' claims may define the invention using words of difference scope, they still commonly recite the presence of a barrier layer formed from a silicon source. The Examiner appears to have relied on the different preambles of the claims as the basis for making the requirement, which is impermissible. See MPEP §806.04(e).

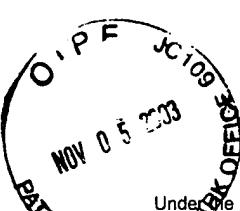
Applicants submit that restricted claims 30-31 and 43-74 in the application are presented in a form that is analogous to combination/subcombination product claims. The Examiner has failed to provide any basis or reasoning which demonstrates that the combination claims are patentable without the claimed subcombination.

Accordingly, applicants submit that the restriction requirement is improper and should be withdrawn. Applicants request examination of all pending claims.

Respectfully submitted,
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT **(*\$*)** 130.00

Complete if Known

Application Number	10/039,517
Filing Date	January 3, 2002
First Named Inventor	Don Carl Powell
Examiner Name	D. Lee
Art Unit	2818
Attorney Docket No.	MIO 0059 V2/40509.179

METHOD OF PAYMENT (check all that apply)

Check Credit card Money Order Other None

Deposit Account:

Deposit Account Number
Deposit Account Name

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 Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION (continued)

1. BASIC FILING FEE

Large Entity	Small Entity	Fee Description	Fee Paid
Fee Code (\$)	Fee Code (\$)		
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	
SUBTOTAL (1) (<i>\$</i>)		-0-	

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Fee from below	Extra Claims	Fee Paid

Total Claims -20** = X =
Independent Claims - 3** = X =
Multiple Dependent =

Large Entity	Small Entity	Fee Description
Fee Code (\$)	Fee Code (\$)	
1202 18	2202 9	Claims in excess of 20
1201 86	2201 43	Independent claims in excess of 3
1203 290	2203 145	Multiple dependent claim, if not paid
1204 86	2204 43	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent
SUBTOTAL (2) (<i>\$</i>)		-0-

**or number previously paid, if greater; For Reissues, see above

3. ADDITIONAL FEES

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for ex parte reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	
1402 330	2402 165	Filing a brief in support of an appeal	
1403 290	2403 145	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	130
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	
Other fee (specify)			

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (*\$*) 130.00

(Complete if applicable)

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Signature		Date	11/03/2003	

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